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EXAMINER	
HO, ALLEN C	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/644,206	HARDESTY, DAN	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12042005, 26042005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 4, 36, and 38 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a collimator.

Collimation could not be achieved and/or changed without a collimator.

3. Claims 19, 21, 53, and 55 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: Controlling a collimator to change the collimation of x-ray radiation.

Collimation could not be achieved and/or changed without a collimator.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 9-21, 31-38, 43-55, and 65-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Alving *et al.* (U. S. Patent No. 6,594,339 B1).

With regard to claims 1 and 35, Alving *et al.* disclosed an apparatus comprising: an x-ray emission system (**1**) responsive to at least one emission control signal (cX) by providing at least first and second doses of x-ray radiation, wherein the second dose differs from the first dose in one or more of a plurality of x-ray radiation characteristics, and the first and second dose are at least partially non-contemporaneous; an x-ray detection system (**4**) responsive to at least one detection control signal (r-cl, c-cl); and a control system (**10**), coupled to the x-ray emission and detection systems, responsive to at least the first image signal by providing the emission and detection control signals, wherein, in relation to a portion of the first image signal corresponding to the sub-portion of the subject, the second image signal differs from the first image signal in one or more of a plurality of image characteristics.

With regard to claims 2 and 36, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein the one or more of a plurality of x-ray radiation characteristics comprises intensity (column 7, lines 43-48).

With regard to claims 3 and 37, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein the one or more of a plurality of image characteristics comprises image resolution (column 6, lines 33-40).

With regard to claims 4 and 38, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein: the one or more of a plurality of x-ray radiation characteristics comprises intensity

(column 6, lines 54-63); and the one or more of a plurality of image characteristics comprises image resolution (column 6, lines 33-40).

With regard to claims 9 and 43, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein the x-ray detection system comprises detection circuitry (**20**) responsive to a first portion of the at least one detection control signal and the respective portions of the first and second doses of x-ray radiation by providing plurality of signals.

With regard to claims 10 and 44, Alving *et al.* disclosed the apparatus of claims 9 and 43, wherein the x-ray detection system further comprises processing circuitry (**6**) coupled to the detection circuitry and responsive to a second portion of the at least one detection control signal and the plurality of pixel signals by providing the first and second image signals.

With regard to claims 11-13 and 45-47, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein the control system comprises: receiving circuitry (7); processing circuitry (7); and control circuitry (**10**).

With regard to claims 14, 15, 48, and 49, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein the at least one emission control signal comprises at least one signal for controlling at least one of a plurality of operating parameters for the x-ray emission system (column 6, lines 54-63).

With regard to claims 16 and 50, Alving *et al.* disclosed the apparatus of claims 1 and 35, wherein the at least one detection control signal comprises at least one signal (r-cl, c-cl) for controlling at least one of a plurality of operating parameters for the x-ray detection system.

With regard to claims 17 and 51, Alving *et al.* disclosed the apparatus of claims 16 and 50, wherein the at least one of a plurality of operating parameters for the x-ray detection system comprises at least one of bias and dynamic range (column 7, lines 17-32).

With regard to claims 18 and 52, Alving *et al.* disclosed an automated method for producing a plurality of x-ray image signals corresponding to selected views of a subject with selectively variable image resolutions, comprising: receiving at least one emission control signal (cX); generating, in response to the at least one emission control signal, at least first and second doses of x-ray radiation (test exposure and x-ray exposure, column 8, line 49), wherein the second dose differs from the first dose in one or more of a plurality of x-ray radiation characteristics, and the first and second doses are at least partially non-contemporaneous; receiving (**20**) at least a portion of the first and second doses of x-ray radiation following exposure thereto of a portion of a subject; receiving at least one detection control signal (r-cl, c-cl); generating, in response to the at least one detection control signal and the at least a portion of the first and second doses of x-ray radiation, first and second image signals (pIS), wherein the first and second image signals correspond to the portion and a sub-portion of the subject, respectively, and the sub-portion is contained at least in part within the portion (when they overlap); processing (**10**) the first and second image signals; and generating (**10**), in response to at least the processed first image signal, the emission and detection control signals, wherein, in relation to a portion of the first image signal corresponding to the sub-portion of the subject, the second image signal differs from the first image signal in one or more of a plurality of image characteristics.

With regard to claims 19 and 53, Alving *et al.* disclosed the method of claims 18 and 52, wherein the one or more of a plurality of x-ray radiation characteristics comprises intensity (column 7, lines 43-48).

With regard to claims 20 and 54, Alving *et al.* disclosed the method of claims 18 and 52, wherein the one or more of a plurality of image characteristics comprises image resolution (column 6, lines 33-40).

With regard to claims 21 and 55, Alving *et al.* disclosed the method of claims 18 and 52, wherein the one or more of a plurality of x-ray radiation characteristics comprises at least intensity (column 7, lines 43-48); and the one or more of a plurality of image characteristics comprises image resolution (column 6, lines 33-40).

With regard to claims 31, 32, 65, and 66, Alving *et al.* disclosed the method of claims 18 and 52, wherein the generating, in response to the processed first and second image signals, the emission and detection control signals comprises generating at least one signal for controlling at least one of a plurality of parameters for the generating of the at least first and second doses of x-ray radiation (column 6, lines 54-63).

With regard to claims 33 and 67, Alving *et al.* disclosed the method of claim 18, wherein the generating, in response to the processed first and second image signals, the emission and detection control signals comprises generating at least one signal (r-cl, c-cl) for controlling at least one of a plurality of parameters for the generating of the first and second image signals.

With regard to claims 34 and 68, Alving *et al.* disclosed the method of claims 33 and 67, wherein the at least one of a plurality of parameters of the generating of the first and second image signals comprises at least one of bias and dynamic range (column 7, lines 17-32).

6. Claims 1, 2, 5-16, 18, 19, 22-33, 35, 36, 39-50, 52, 53, and 56-67 are rejected under 35 U.S.C. 102(e) as being anticipated by Milnes (U. Patent No. 6,463,121 B1).

With regard to claims 1 and 35, Milnes *et al.* disclosed an apparatus comprising: an x-ray emission system (**132**) responsive to at least one emission control signal by providing at least first and second doses of x-ray radiation, wherein the second dose differs from the first dose in one or more of a plurality of x-ray radiation characteristics (column 6, lines 16-19), and the first and second dose are at least partially non-contemporaneous; an x-ray detection system (**142**) responsive to at least one detection control signal; and a control system (**120**) coupled to the x-ray emission and detection systems, responsive to at least the first image signal by providing the emission and detection control signals, wherein, in relation to a portion of the first image signal corresponding to the sub-portion of the object, the second image signal differs from the first image signal in one or more of a plurality of image characteristics.

With regard to claims 2 and 36, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein the one or more of a plurality of x-ray radiation characteristics comprises intensity and collimation (column 6, lines 16-19).

With regard to claims 5-7 and 39-41, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein: the x-ray emission system is further responsive to the at least one emission control signal by controlling the first spatial relation; and the x-ray detection system is further responsive to the at least one detection control signal by controlling the second spatial relation (column 5, lines 43-55).

With regard to claims 8 and 42, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein the x-ray emission system comprises: an x-ray source (**132**) and a collimator (column 6, lines 16-19).

With regard to claims 9 and 43, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein the x-ray detection system comprises detection circuitry (**730**) responsive to a first portion of the at least one detection control signal and the respective portions of the first and second doses of x-ray radiation by providing plurality of signals.

With regard to claims 10 and 44, Milnes *et al.* disclosed the apparatus of claims 9 and 43, wherein the x-ray detection system further comprises processing circuitry (**725**) coupled to the detection circuitry and responsive to a second portion of the at least one detection control signal and the plurality of pixel signals by providing the first and second image signals.

With regard to claims 11-13 and 45-47, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein the control system comprises: receiving circuitry (**725**); processing circuitry (**725**); and control circuitry (**710**).

With regard to claims 16 and 50, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein the at least one detection control signal comprises at least one signal (**702**) for controlling at least one of a plurality of operating parameters for the x-ray detection system.

With regard to claims 14, 15, 48, and 49, Milnes *et al.* disclosed the apparatus of claims 1 and 35, wherein the at least one emission control signal comprises at least one signal for controlling at least one of a plurality of operating parameters for the x-ray emission system (column 6, lines 16-19).

With regard to claims 18 and 52, Milnes *et al.* disclosed an automated method for producing a plurality of x-ray image signals corresponding to selected views of a subject with selectively variable image resolutions, comprising: receiving at least one emission control signal (**702**); generating (**132**), in response to the at least one emission control signal, at least first and second doses of x-ray radiation (sequentially), wherein the second dose differs from the first dose in one or more of a plurality of x-ray radiation characteristics (column 6, lines 16-19), and the first and second doses are at least partially non-contemporaneous; receiving (**142**) at least a portion of the first and second doses of x-ray radiation following exposure thereto of a portion of a subject; receiving at least one detection control signal (**702**); generating, in response to the at least one detection control signal and the at least a portion of the first and second doses of x-ray radiation, first and second image signals, wherein the first and second image signals correspond to the portion and a sub-portion of the subject, respectively, and the sub-portion is contained at least in part within the portion (when they overlap); processing (**250**) the first and second image signals; and generating (**120**), in response to at least the processed first image signal, the emission and detection control signals, wherein, in relation to a portion of the first image signal corresponding to the sub-portion of the subject, the second image signal differs from the first image signal in one or more of a plurality of image characteristics.

With regard to claims 19 and 53, Milnes *et al.* disclosed the method of claims 18 and 52, wherein the one or more of a plurality of x-ray radiation characteristics comprises intensity and collimation (column 6, lines 16-19).

With regard to claims 22-24 and 56-58, Milnes *et al.* disclosed the method of claims 18 and 52, further comprises: controlling the first spatial relation in further response to the at least

one emission control signal; and controlling the second spatial relation in further response to the at least one detection control signal (column 5, lines 43-55).

With regard to claims 25-27 and 59-61, Milnes *et al.* disclosed the method of claims 18 and 52, further comprising: collimating, in response to a second portion of the at least one emission control signal, the x-ray radiation (column 6, lines 16-19).

With regard to claims 28-30 and 62-64, Milnes *et al.* disclosed the method of claims 18 and 52, further comprising storing (**725**) a plurality of image data corresponding to the first and second image signals.

With regard to claims 31, 32, 65, and 66, Milnes *et al.* disclosed the method of claims 18 and 52, wherein the generating, in response to the processed first and second image signals, the emission and detection control signals comprises generating at least one signal for controlling at least one of a plurality of parameters for the generating of the at least first and second doses of x-ray radiation (column 6, lines 16-19).

With regard to claims 33 and 34, Milnes *et al.* disclosed the method of claims 18 and 52, wherein the generating, in response to the processed first and second image signals, the emission and detection control signals comprises generating at least one signal (**702**) for controlling at least one of a plurality of parameters for the generating of the first and second image signals.

Response to Arguments

7. Applicant's arguments filed 26 May 2006 with respect to claims 1-17 and 35-51 have been fully considered and are persuasive. The rejection of claims 1-17 and 35-51 under 35 U.S.C. 112, second paragraph, has been withdrawn.

8. Applicant's arguments filed 26 May 2006 have been fully considered but they are not persuasive.

With regard to the rejection of claims 2, 4, 19, 21, 36, 38, 53, and 55 under 35 U.S.C. 112, second paragraph, the applicant argues that one of ordinary skill in the art understands that an x-ray emission system used as part of "an automated x-ray imaging system for producing a plurality of x-ray imaging signals" would include one or more of a number of constituent elements or components (*e. g.*, collimator) for providing doses of x-ray radiation. This argument is not persuasive, since the features upon which the applicant relies are not recited in the rejected claims. It is unclear what is an automated x-ray imaging system since the claims do not set forth its constitution elements or components. Therefore, the rejections are being maintained.

With regard to the rejection of claims 1-4, 9-21, 31-38, 43-55, and 65-68 under 35 U.S.C. 102(e) as being anticipated by Alving *et al.* (U. S. Patent No. 6,594,339 B1), the applicant argues that Alving *et al.* failed to disclose a control system responsive to at least the first image signal by providing the emission and detection control signals, wherein, in relation to a portion of the first image signal corresponding to the sub-portion of the subject, the second image signal differs from the first image signal in one or more of a plurality of image characteristics. The examiner respectfully disagrees. Alving *et al.* disclosed a control system that provides the emission and detection control signals based on a first image signal, where the first image signal includes a portion of the first image signal that corresponds to a sub-portion of the subject. Thus, Alving *et al.* disclosed a control system that provides the emission and detection control signal based on a portion of the first image signal corresponding to a sub-portion of the subject. Furthermore, the recitation "said sub-portion is contained at least in part within the portion" does

not exclude the possibility that the sub-portion can be the entire portion. Therefore, the rejection is being maintained.

With regard to the rejection of claims 1, 2, 5-16, 18, 19, 22-33, 35, 36, 39-50, 52, 53, and 56-67 under 35 U.S.C. 102(e) as being anticipated by Milnes (U. Patent No. 6,463,121 B1), the applicant argues that Milnes failed to disclose a control system that provides the emission and detection control signals based upon a portion of the first image signal corresponding to the sub-portion of the subject. The examiner disagrees for the same reason set forth above with respect to the rejection based on the teachings of Alving *et al.* Specifically, Milnes disclosed a control system that provides emission and detection control signals based upon a portion of a first image signal corresponding to a sub-portion of a subject, where the sub-portion is contained at least in part within the portion. Therefore, the rejection is being maintained.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allen C. Ho, Ph.D.
Primary Examiner
Art Unit 2882

16 August 2006